In the claims:

All of the claims standing for examination are reproduced below.

1-6. (Canceled)

7. (Currently amended) In a communication system having a plurality of <u>nodes each</u> <u>having a plurality of</u> physical communication ports, a method for <u>controlling and</u> <u>managing</u> ~~grouping~~ ports in data routing, comprising the steps of:

    (a) defining <u>one or more hierarchical bonds for the individual nodes using the</u> <u>ports specific to the nodes comprising</u> a logical interface at a top level of [[a]] hierarchical ~~bond~~ <u>bonds</u> by grouping a plurality of ports;

    (b) defining a first subjugate logical interface at a second level of the hierarchical bond as an element of the top-level logical interface by defining a <u>plurality of first</u> <u>portions each specific to an individual one of the nodes</u> <u>recording availability status of the</u> <u>hierarchical bonds for routing of data by monitoring characteristics of both logical and</u> <u>physical interfaces and data links of the hierarchical bond</u>, ~~portion of the plurality of ports~~ ~~as defined in the logical interface at the top level of the bond~~; and

    (c) <u>defining a common second portion providing configuration input to the</u> <u>plurality of nodes</u> <u>for use in the monitoring by the first portion;</u>

    <u>(d)</u> routing data by addressing the top-level bond, which then uses logical and physical ports and interfaces of the hierarchy for data transmission.

8. (Original) The method of claim 7 wherein components at the top level and the second level comprise one or more physical interfaces.

9. (Currently amended) The method of claim 7 wherein the hierarchical ~~bond comprises~~ <u>bonds</u> <u>comprise</u> more than two levels.

10. (Currently amended) The method of claim 9 wherein one or more physical interfaces form a part of one or more levels of the hierarchical bonds ~~bond~~.

11. (Original) The method of claim 7 wherein the communication system is a data router in a data packet network.

12. (Original) The method of claim 11 wherein the data packet network is the Internet network.

13. (Currently amended) In a communication system a control system for managing links in data routing, comprising:

a plurality of nodes each having a plurality of physical ports;

one or more hierarchical bonds comprising a logical interface at a top level including a plurality of data links;

a first subjugate logical interface at a second level of the hierarchical bond as an element of the top-level logical interface;

a first portion recording availability status of the hierarchical bonds for routing of data by monitoring characteristics of both logical and physical interfaces and data links of the hierarchical bonds; and

a second portion providing configuration input for use in the monitoring by the first portion[[.]];

wherein bonds are defined for the individual nodes using the ports specific to the nodes, and the control system comprises a plurality of first portions each specific to an individual one of the nodes, and a common second portion providing configuration input to the plurality of nodes.

14. (Previously presented) The control system of claim 13 wherein one or more thresholds are configured for an interface characteristic through the second portion for individual ones of the logical interfaces, a logical interface considered up having a

determined amount of data links with sufficient bandwidth or down having a determined amount of data links with insufficient bandwidth according to a current threshold value of the characteristic for the interface in relation to the value of the configured threshold or thresholds.

15. (Original) The control system of claim 14 wherein a threshold configured for a logical interface is an up threshold such that the logical interface is considered up if the instant value of the threshold characteristic for the logical interface has the configured relationship to the configured value of the up threshold.

16. (Original) The control system of claim 14 wherein a threshold set for a logical interface is a down threshold such that that the logical interface is considered down if the instant value of the threshold characteristic for the logical interface has the configured relationship to the configured value of the down threshold.

17. (Original) The control system of claim 14 wherein two threshold values differing in magnitude are configured for an individual one of the logical interfaces, one being an up threshold, and the other a down threshold, such that the logical interface may be considered up even though it no longer meets the configured relationship of the up threshold, but does not yet meet the configures relationship for the down threshold, or may be considered down even though the threshold characteristic for the interface no longer meets the configured relationship for the down threshold, but does not yet meet the configured relationship for the up threshold.

18. (Original) The control system of claim 17 wherein the first portion periodically evaluates the status of the hierarchical bonds for routing data by determining the up or down status of each bond, beginning with the lowest level in the hierarchy and proceeding upward to the highest level of the bond.

19. (Original) The control system of claim 13 wherein the second portion comprises one or more of a graphical user interface (GUI), a control line interface (CLI), for configuring bond characteristics, or an SNMP interface for configuring bond characteristics.

20. (Canceled)

21. (Original) The control system of claim 14 wherein the characteristic for thresholds associated with an interface is the up or down state of components of the interface, expressed as a number up or a number down.

22. (Original) The control system of claim 14 wherein the characteristic for thresholds associated with an interface is a percentage of the number of components of the interface having an up or a down state.

23. (Original) The control system of claim 14 wherein the characteristic for thresholds is a fixed bandwidth value.

24. (Original) The control system of claim 14 wherein the characteristic for thresholds is a percentage of potential bandwidth.

25. (Previously presented) A data router comprising:
    a plurality of physical communication ports;
    at least one hierarchical bond having a logical interface as a component of the bond at a top level of the hierarchy defining a portion of the plurality of physical communication ports, and a first subjugate logical interface at a second level of the hierarchy as a component of the top-level logical interface further defining a portion of the physical communication ports defined at the top level of the hierarchy, and
    a control system for managing links in data routing, the control system having a first portion recording availability status of the hierarchical bonds for routing of data by

monitoring status either up or down of both logical and physical interfaces and ports of the at least one hierarchical bond, and a second portion providing configuration input for use in the monitoring by the first portion.

26. (Original) The data router of claim 25 wherein the at least one hierarchical bond comprises more than two levels.

27. (Original) The data router of claim 25 wherein the data router is dedicated to a data packet network.

28. (Original) The data router of claim 27 wherein the data packet network is the Internet network.

29. (Previously presented) The data router of claim 25 wherein data is routed by addressing the bond, which then uses logical and physical ports and interfaces of the hierarchy for data transmission.

30. (Previously presented) The data router of claim 25 wherein one or more thresholds are configured for an interface characteristic through the second portion for individual ones of the logical interfaces, a logical interface considered up having a determined amount of data links with sufficient bandwidth or down having a determined amount of data links with insufficient bandwidth according to a current value of the characteristic for the interface in relation to the value of the configured threshold or thresholds.

31. (Original) The data router of claim 30 wherein a threshold configured for a logical interface is an up threshold such that the logical interface is considered up if the instant value of the threshold characteristic for the logical interface has the configured relationship to the configured value of the up threshold.

32. (Original) The data router of claim 30 wherein a threshold set for a logical interface is a down threshold such that that the logical interface is considered down if the instant value of the threshold characteristic for the logical interface has the configured relationship to the configured value of the down threshold.

33. (Original) The data router of claim 30 wherein two threshold values differing in magnitude are configured for an individual one of the logical interfaces, one being an up threshold, and the other a down threshold, such that the logical interface may be considered up even though it no longer meets the configured relationship of the up threshold, but does not yet meet the configures relationship for the down threshold, or may be considered down even though the threshold characteristic for the interface no longer meets the configured relationship for the down threshold, but does not yet meet the configured relationship for the up threshold.

34. (Original) The data router of claim 33 wherein the first portion periodically evaluates the status of the hierarchical bonds for routing data by determining the up or down status of each bond, beginning with the lowest level in the hierarchy and proceeding upward to the highest level of the bond.

35. (Original) The data router of claim 30 wherein the second portion comprises one or more of a graphical user interface (GUI), a control line interface (CLI), for configuring bond characteristics, or an SNMP interface for configuring bond characteristics.

36. (Original) The data router of claim 30 wherein the communication system comprises a plurality of nodes each having a plurality of physical ports, wherein bonds are defined for individual nodes using the ports specific to the nodes, and the control system comprises a plurality of first portions each specific to an individual one of the nodes, and a common second portion providing configuration input to the plurality of nodes.

37. (Original) The data router of claim 30 wherein the characteristic for thresholds associated with an interface is the up or down state of components of the interface, expressed as a number up or a number down.

38. (Original) The data router of claim 30 wherein the characteristic for thresholds associated with an interface is a percentage of the number of components of the interface having an up or a down state.

39. (Original) The data router of claim 30 wherein the characteristic for thresholds is a fixed bandwidth value.